



Annex 3. General WACC Methodology ACM

The table below describes the general WACC methodology the ACM uses. Note that in particular cases a deviation from this methodology might be required. For instance, for Caribbean Netherlands focusing solely on European data would not be appropriate and hence data from Latin America, USA and the Caribbean region needs to be employed to determine the WACC for the Caribbean Netherlands.

Parameter	General
Risk-free rate	20 years Netherlands and Germany; 3 years daily data.
Peer group	Liquidity requirements (<i>see below</i>); Comparability (<i>see below</i>); Size of peer group (<i>see below</i>).
Beta – market indices	Note which index was used in the previous decision. (Preference for STOXX Europe 600 for Eurozone and Europe and S&P 500 for USA.)
Beta – statistical	Three year daily data, <i>see below</i> .
Beta – other	Median asset beta of the peers. De/relevering: Modigliani-Miller formula, using the average gearing and tax rate over three years of the peer in question; using the gearing and tax rate for the respective sector/industry.
MRP	Latest report of Dimson, March and Staunton, using the Eurozone countries, and the average of the arithmetic mean and the geometric mean of each country, weighted by market capitalization of each country. A check with the results of DGM-models should be made, and judged taking into consideration a downward adjustment to the historical ERP as reported by Dimson, March and Staunton. ¹
Credit rating	Based on rating of peers, taking the credit rating of countries where these peers are based, into account.
Cost of debt	Normative or actual portfolio; <i>Normative is based on:</i> 10 year maturity bond index or reference group with suitable credit rating and 10 year maturity date; Existing debt: Staircase model; New debt: Reference period of 3 year.
Transaction costs	15 bp
Gearing	Based on peer group (taking credit ratings of peers into account) or on the company itself. Calculated as the three-year average of quarterly gearing ratios of each peer, obtained by net debt over market capitalization. The advised gearing may need some further analysis and judgment, especially if peers do not have a sufficient credit rating.
Tax	Latest known capital gains tax rate.
Inflation	Not relevant, mostly nominal WACC's.
Calculation and rounding	Only the final WACC-numbers should be rounded to one decimal. All intermediate results of parameters should not be rounded.

¹ See Brattle's advice in this respect: [Brattle, Calculating the Equity Risk Premium and the Risk-free Rate](#), 26 november 2012. See also ACM, [Uitwerking van de methode van het redelijk rendement \(WACC\) bij de gewijzigde methodebesluiten 2022-2026](#) (WACC-annex to the revised method decisions), ACM/UIT/607249, 14 december 2023, section 2.2.2.

Peer selection

- Liquidity criteria. Shares should be traded frequently in order to have efficient share pricing, which is necessary for reliable regression outcomes. As a result of a court ruling ACM had to redetermine the liquidity criteria. Frontier Economics² advised ACM to use the bid-ask spread as criterion, and use 1% as a cut-off. ACM followed this advice, with the note that in specific cases a bid-ask spread above 1% is acceptable and in other cases a bid-ask spread below 1% may not be acceptable, to be judged by the consultant. A summary of the report can be found in the method decisions.³
- Comparability: peers should be comparable. Please note the approach followed in the previous reports.
- Attention should be paid to the size of the peer group. Previously ACM stated a preference for a minimum of 10 peers. However in recent regulatory assessment fewer peers were found that met the criteria (depending on the sector, for network operators this number was 8). If the number of peers drops further, attention should be paid to the balance between the quality of peers and the reliability (standard error) of the statistical outcome. If there is a preference to increase the number of peers by including slightly less comparable companies, then an analysis should be done on how these additional peers can best be included in determining the average.⁴

Beta determination – statistical:

- ACM usually estimates beta based on three years of historical daily stock price data. Previously, some consultants have conducted an Dimson test to verify whether the beta estimate is reliable. However, at one point in time some unexpected patterns emerged; which has led the ACM to formulate a broader test for market imperfections (*see below*).⁵
- In financial markets it is possible that information relevant for the value of a stock is not included in the share price immediately. Examples of such market imperfections include limited liquidity, information asymmetry, the use of limit orders, overreaction to information and subsequent corrections, etc. These short-time fluctuations may produce biased estimates of beta when high-frequency (daily) data is used. Hence, if market imperfections for a certain stock exist, it is generally preferable to use data with a lower frequency, like weekly data, to obtain a unbiased estimate of beta.
- ACM generally prefers the use of daily data compared to weekly stock data because it has a smaller standard error, which provides more price estimates. However, daily stock price data is more sensitive to the market imperfections, as mentioned before. To determine whether daily or weekly data is more appropriate ACM has developed a test involving three statistical checks. These checks assess the relationship between the market return of the current day and the returns from the previous day (day-1) and the next day (day+1), using the following tests:
 - A t-test to check if the coefficient of the market return of the previous day (day-1) is significant;
 - A t-test to check if the coefficient of the market return of the next day (day+1) is significant;
 - An F-test to check if these two coefficients combined are significant.
- If any of these tests is significant, market imperfections are likely to be present and weekly data should be used instead of daily data.
- Statistics for autocorrelation and heteroscedasticity should be reported.⁶

² Frontier Economics, [Criteria to select peers for efficient beta estimation, a report for ACM](#), 8 January 2020.

³ See for example [Gewijzigd methodebesluit regionale netbeheerders elektriciteit 2022-2026](#) (revised method decision distribution system operators electricity 2022-2026), 14 December 2023, ACM/UIT/605244, section 7.4, para. 254-256.

⁴ In the context of harbour pilots ACM uses three peer groups. For drinking water ACM uses three peer groups as well and weighs them in a specific way.

⁵ See ACM, [Uitwerking van de methode van het redelijk rendement \(WACC\), Bijlage bij de gewijzigde methodebesluiten 2022-2026](#) (WACC-annex to the revised method decisions), ACM/UIT/607249, 14 December 2023, para 64-68.

⁶ See para. 69-72 of the WACC-annex: Newey-West robust standard error for autocorrelation and the Huber-White robust standard error for heteroskedasticity